

outer chamber of certain Ammonites, as for example, in *A. Jasoni*. In the phragmocone of the *Belemnoteuthis* the peristome is entire.

Another interesting part of the structure of the Belemnite, not previously detected, is also shown in the same specimen, as well as in many other examples found in the Oxford clay near Trowbridge; namely, a calcareous shelly periosteum or capsule, which invests the guard, and expands upwards into a horny sheath or receptacle, that surrounds the basal chamber of the phragmocone in which the viscera were probably contained. This receptacle was formerly supposed to originate from within the alveolus of the guard. Mr. Miller, many years ago, inferred the existence of a vascular integument around the guard from the meandering impressions of blood-vessels observable on the surface of some specimens; but the presence of a calcareo-corneous capsule or sheath investing the guard, and expanding into a horny receptacle, has not till now been demonstrated.

The author considers the facts described as proving that the cephalopod of the Belemnite was entirely distinct from the *Belemnoteuthis*; and that the muscular mantle, cephalic arms, and other parts referred by Professor Owen to the former, exclusively belong to the latter genus.

He concludes that the remains of at least three genera of naked Cephalopoda occur in the argillaceous deposits of the oolite in Wiltshire; namely, the first or true *Calamary*, with a horny dorsal gladius or pen; the second, the *Belemnoteuthis*, or a decapod with uncinated cephalic arms, ink-bag, pallial fins, and a corneo-calcareous phragmocone; and the third, the *Belemnite*, which possessed a phragmocone having the apical part implanted in the cavity or alveolus of a guard or osselet, which in its original state resembled in substance the sepistaire of the Cuttle-fish, but is generally found mineralized by calcareous spar; and the peristome, possessing two or more elongated shelly processes; both the guard and the phragmocone being invested with a corneo-calcareous capsule or receptacle. He observes, lastly, that the body and other soft parts of the cephalopod of the Belemnite are at present unknown. The author's communication was illustrated by drawings, and accompanied by the specimens above described.

MISCELLANEOUS.

On a new genus and species of Fossil Ruminantia, Poëbrotherium Wilsoni. By JOSEPH LEIDY, M.D.

INDIRECTLY through Mr. J. S. Phillips and the influence of Dr. S. G. Morton, the Academy has become the depositary of a valuable and unique fossil, received through Dr. S. D. Culbertson of Chambersburg, Pa., from Mr. Joseph Culbertson.

As first received, it consisted of a mass of argillaceous limestone, having one side of a cranium of an animal exposed to view, which, by the patience of Dr. T. A. Wilson, was relieved of its matrix; and

the lower extremity of the humerus, and the upper extremity of the ulna and radius of the right leg were also disclosed.

The top or vault above the orbits, and posterior part of the cranium, are wanting, as are also the ossa nasi, ossa intermaxillaria, the part of the os maxillare inferius just anterior to the commencement of the symphysis, and the zygoma of the left side, but sufficient is left to characterize it as a remarkable genus of Ruminantia, very different from any that has been heretofore described.

The cranium belonged to a full-grown or adult animal, but not an old one, as is indicated by the teeth.

In the upper jaw are seven molars, differing in this respect from any ruminant known, living or fossil. The posterior three molars, usually called true, present nothing very peculiar in their conformation. They are not so square as in *Cervus*, but are more like those of *Ovis*, being much broader than wide, so that they have a compressed appearance. The four crescents upon the crowns are quite simple. Externally these teeth present two and nearly plane surfaces, separated by an abrupt, salient, longitudinal ridge on a line with the notch separating the anterior and posterior pair of columns. Each of these surfaces has a longitudinal rounded ridge, more prominent upon the anterior than the posterior one, but neither so salient as the first. The antero-external border is also elevated or prominent, so that each of these teeth presents externally four longitudinal ridges. As is usual, these teeth are obliquely situated in the jaw, and the anterior part of one folds over externally, or overlaps the posterior part of the one preceding it.

The anterior four molars or premolars are not more than half the length of the true molars, and differ among themselves so as to render it necessary to examine them separately. The posterior or fourth premolar has more the characteristics of a true molar, and it would probably not be wrong to consider it as an additional true molar. The crown presents four crescents, which are thicker than in the true molars, and the anterior and posterior pair are separated by a comparatively deeper notch. Externally the tooth has four ridges corresponding to those of the true molars. The third premolar, or the one immediately preceding the last, has upon its crown a posterior pair of thick crescents, and an anterior cusp which has the appearance of being formed by the blending together of a pair of crescents. Externally it is trilobed, the lobes being separated by two concave depressions. It is shorter, but broader, than the last. The second premolar is compressed, faintly trilobed, and presents an elongated trenchant crown. The first premolar is the most remarkable characteristic of this cranium. It is separated from the others by a concave notch of $\frac{1}{3}$ of an inch, and is on a line with the anterior mental foramen. It is implanted in the jaw by two fangs which are divergent and placed one anterior to the other. The body is nearly as broad as the second premolar and is of a compressed pyramidal form, and the crown has a trenchant edge, the posterior and anterior part of which form an angle about its centre.

In the lower jaw, in the specimen, are six inferior molars in

closed row commencing .25 of an inch anterior to the corresponding six molars above, and continuing as far back as the latter. Besides these, and separated from them by a concave, descending notch of .45 of an inch, just anterior to the anterior mental foramen, or .15 of an inch anterior to the commencement of the symphysis posteriorly, is one-half of an alveolus for an additional or seventh molar, which, when the specimen was first received, contained a portion of a fang, since mislaid. This additional molar in the lower jaw is possessed by only one other known genus of Ruminantia, the *Dorcatherium* of Kaup.

The crowns of the inferior molars are enveloped in the matrix in such a manner that they cannot be exposed without endangering the specimen. Externally the three true molars present their columns as sharply triangular prisms, as in *Ovis*, &c., and have no intervening points or cones, as in *Cervus*, *Dorcatherium*, &c.

The fourth premolar is trilobed externally, each lobe presenting a cusp towards the crown. The third and second are compressed, and the latter, I can perceive, has a trenchant crown.

The position of the molars, though resembling that of *Dorcatherium* considerably more than that of any other genus of Ruminantia, differs materially from it; for while the teeth reach to the symphysis in the latter, in the former they even extend anteriorly to its commencement.

From the foregoing description of the teeth, it will be perceived, that in the possession of a seventh molar in the upper jaw, in the position of the molars, and in several other minor peculiarities, this genus differs from all others heretofore known, and is well characterized, and I therefore propose for it the name of "*Poëbrotherium* *."

[We omit some further details, and pass to the concluding remarks.]

These bones belonged to an animal rather less in size than the *Dorcatherium*.

The species I have designated *Wilsoni*, in honour of Dr. Thomas B. Wilson, a munificent patron of the natural sciences.

Probable habit of the animal.—From the evidences of considerable muscular strength in the posterior part of the inferior maxilla and the trenchant crowns of the anterior premolars, it might be supposed that the animal was adapted to eating flesh as part of its food, as was thought by Cuvier to have been probably the case with the *Anoplotherium gracile*, a pachydermous animal having very similar characters; but I should think its general structure would entirely preclude the idea of its having been able to catch living animal prey, and doubt very much whether its food could have been other than vegetable. The anterior trenchant molars were more probably intended for cutting branches and twigs of bushes, or tough grasses, which afterwards underwent a finer trituration with the true molars.

The position which the genus should occupy.—*Poëbrotherium* in its dentition approaches the Ruminantia to the Pachydermata, for in the number of the molar teeth and the trenchant nature of the anterior

* πῶα, herba, βρώω, pascō, θῆρ, fera.

premolars, it is closely allied to the Xiphodont *Anoplotherium*, while in the true molars it is characteristically ruminant, and its position would therefore probably stand thus : *Dorcatherium*, *Poebrotherium*, *Anoplotherium*.

*Measurements * of the head.*

	In.
Meatus auditorius externus to infra orbital foramen	3·1
From point of hook-like process of inferior maxilla to anterior mental foramen	4·35
Greatest width of orbit	1·15
Narrowest part of face, below ossa nasi	·2
Width at the coron-condyloid depressions of inferior maxilla	1·6
Width at the coronoid processes	2·
Greatest width at the ossa tympani	2·1
Distance between ossa tympani	·375
Width of os tympanum	·85
Length of row formed by the posterior six superior molars ...	2·5
Notch between the first and second superior premolars	·333
Length of row formed by the posterior six inferior molars.....	2·7
Notch between the first and second inferior premolars	·45

Measurements of superior molar teeth.

	Length.	Breadth.	Thickness.
7th molar	·375	·6	·2
6th —	·4	·55	·25
5th —	·333	·45	·275
4th —	·2	·375	·25
3rd —	·15	·4	·2
2nd —	·1	·35	·1
1st —	·15	·3	·075

Measurements of inferior molar teeth.

	Length.	Breadth.
7th molar	·3	·35
6th —	·3	·5
5th —	·25	·4
4th —	·15	·45
3rd —	·1	·35
2nd —	·1	·35

Measurements from bones of fore-leg.

Transverse diameter of lower articular surface of os humeri	·75
Antero-posterior diameter in depressed portion of same	·45
Length of olecranon above the lowest part of the articular surface of the elbow	·95

From Silliman's Journal for March 1848.

On two new genera of Siliceous-shelled Polygastrica from Patagonian Guano. By Prof. EHRENBURG.

From the very large number of the typical generic forms of Polygastrica already described and arranged, new genera no longer occur so frequently ; but when they do, the new forms have a greater scientific value. During his stay in England last summer Prof. Ehren-

* The measurements are taken in English inches and parts of the same.